FRD ACTIVITIES REPORT
August 2005

Research Programs

Urban Dispersion Program

FRD began the field deployment phase of UDP 2005 on August 1, with the arrival of eight FRD staff in New York City. During the first week of deployment, 5 real-time SF_6 tracer analyzers were installed in vans for mobile deployment, 40 sampler sites in Midtown Manhattan were outfitted with hangers for later bag sampler deployment, and the SF_6 tracer release mechanism was fully prepared for field use. Beginning on August 8 and continuing through August 24, six intensive observation periods (IOP's) consisting of two or three ½-hour releases of SF_6 tracer were conducted under various meteorological conditions. The experiment called for the first three IOP's to be focused on infiltration of the tracer into a major skyscraper with 2-30 minute releases of SF_6 tracer in a six-hour period. The last three IOP's were focused on outdoor tracer dispersion with 3-30 minute releases of SF_6 tracer in a six hour period. The study generated much interest from the media. More than a dozen interviews were given to both major and minor media outlets, including ABC, CBS, NBC, and CNN. The sampler boxes generated much public attention, especially with the public awareness advertizing

FRD staff with real-time mobile SF_6 tracer analyzer vans at the staging area under the Brooklyn Bridge.

FRD staff at the staging area with the Manhattan Bridge and Empire State Building in the background.

blitz in NYC “If you see something, say something.” The combined effect elicited many calls to 911 to report suspicious packages being left on light poles in the Midtown area. In all, the deployment was a complete success, with the collection of a very unique urban dispersion dataset.

FRD SF_6 tracer release location in front of McGraw Hill building on W. 49th Street, Manhattan.

For other FRD staff that remained in Idaho, the month was dedicated to preparing the tracer analysis facility for the arrival of the samples from New York City. The instruments were tuned to determine the correct settings for the most efficient analysis. All instruments were adjusted to initially measure from 0 ppt to 50,000 ppt SF_6. Instrument detection limit studies were performed to gauge the accuracy, precision and stability of each of the ATGAS instruments. From these initial instrument limit of detection (ILOD) and instrument limit of quantitation (ILOQ) studies, an estimation of the method detection was calculated. As expected, stability of each of the instruments increased over time and with usage. (Kirk.Clawson@noaa.gov & Staff)

Two FRD SF_6 tracer samplers on a light pole on 5th Avenue in front of Rockefeller Center.

Perfluorocarbon Analysis Capability

The 10 new perfluorocarbon calibration standards were received this month. Each standard contains three analytes including perfluorodimethylcyclobutane (PDCB), perfluorodimethylcyclohexane (PDCH), and meta-perfluoromethylcyclohexane (m-PMCH). Initial studies with the standards and the gas divider instrument have proven that the UHP air cylinder in use in the laboratory is too contaminated for the perfluorocarbon analysis. The calibration curve created by the use of these mixed standards was useless except for the last four points in the curve. It was then determined that the valves from the manifold were providing differing background concentrations. The manifold system was then taken off-line and the samples were injected individually with much greater success. It has become apparent that the method setup for these analytes may become an arduous task. (Debbie.Lacroix@noaa.gov)

Smart Balloon

A total of three balloons and some spare parts for a fourth smart balloon were completed and tested for shipment to participate in the RAINEX experiment. Shane Beard and Randy Johnson were deployed to Coast Guard Air Station Borinquen near the town of Aguadilla in northwestern Puerto Rico. The Coast Guard allowed their large hanger to be used for inflation and testing of the smart balloons and use of their internet at the community center library. (Randy.Johnson@noaa.gov and Shane Beard)

Cooperative Research with DOE NE-ID (Idaho National Laboratory)

INL Drills, Exercises, and Emergencies

FRD participated in a drill at the INL EOC on 17 August. A substitute team from FRD attended the drill, because most of the staff was in New York City for the UDP tracer experiment. There were some problems with the Mesonet data acquisition during the morning of the 17th, but these were corrected prior to the start of the drill in the afternoon. (Richard.Eckman@noaa.gov and Randy Johnson)

On 31 August, Team C attended a drill at the INL EOC. The drill involved the leak of alcohol from a tank inside a building on the INL. The team operated MDIFF, FRD's transport and dispersion model, as well as provided meteorological support during the drill. (Neil.Hukari@noaa.gov and Brad Reese).

Mesoscale Modeling

Since April, the MM5 point forecasts for several INL facilities have been archived for possible use in verification efforts. An effort is now under way to evaluate MM5's performance by comparing the model point forecasts with data from the INL Mesonet. The focus will initially be on the wind speed and direction, temperature, and the dew point. Eventually, it is hoped that the model's past performance statistics can be combined with the current forecast to provide a more

probabilistic forecast of weather conditions at INL, including an estimate of the uncertainty in the forecast variables. (Richard.Eckman@noaa.gov)

Other Activities

Papers

Biltoft, C. A., K. L. Clawson, J. D. Rich, R. G. Carter, D. J. Lacroix, and K. J. Allwine, 2005: A Preliminary Statistical Tracer Dilution Analysis For The 2003 Oklahoma City Experiment. Submitted to *Journal of Applied Meteorology,* for the special edition on the Joint Urban 2003 project.

Safety

OAR issued a call to laboratory deputy directors to prepare safety budgets FY06. To be included in the budget request were items such as training, compliance issues, supplies, hazardous waste shipments, etc. FRD provided their safety budget to Rick Artz. (Debbie.Lacroix@noaa.gov)

Travel

Kirk Clawson, Roger Carter, Neil Hukari, Tom Strong, Jason Rich and STEP appointees Katherine King, Camille Erwin, and David Stubbs, August 1-26, New York City, NY for the Urban Dispersion Program field experiment.

Randy Johnson and Shane Beard, August 24-31, Aguadilla, Puerto Rico to participate in the RAINEX experiment.

Training

On August 16, Paula Fee took an on-line training "Your Federal Employee Benefits" presented by Snow-Cap Agency.

On August 22, Paula Fee took the two-hour CD training "Integrated Facility Inspection Program (IFIP). This training was a pre-requisite to preparing the online "Questionnaire for NOAA Leased and GSA Assigned Buildings" for the building FRD leases. After review and input from Debbie Lacroix, FRD's Safety and Environmental specialist, the questionnaire was submitted to OAR for review and approval.

Personnel

On August 8 Linda Rosales, Boulder HRD, extended an employment offer to Jennifer Hutton for the vacant meteorologist position. Jennifer was overseas for a few weeks and will give us an answer in September.